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(54) PERMANENT MAGNET AND MATERIAL THEREOF

(57)Abstract:

PROBLEM TO BE SOLVED: To acquire a high maximum product with high saturation magnetization and to improve temperature characteristics of a coercive force, by allowing a main hard magnetic phase represented by a specific formula to be ThMn₁₂ type crystal structure.

SOLUTION: The permanent magnet material is represented by a formula (R is one element selected among rare earth elements comprising Y, M is one element selected among Ti and Nb, T is one element selected among Ni, Cu, Sn, V, Ta, Cr, Mo, W, and Mn, A is one element selected among Si, Ge, Al, and Ga, while $1 \leq u \leq 0.7$, $0 \leq v \leq 0.8$, $0 \leq w \leq 0.1$, $5 \leq x \leq 12$, $0.1 \leq y \leq 1.5$ related to u, v, w, x, and y), and main hard magnetic phase is ThMn₁₂ type crystal structure. The permanent magnet is improved in saturation magnetization and coercive force, with temperature characteristics of the coercive force improved.

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